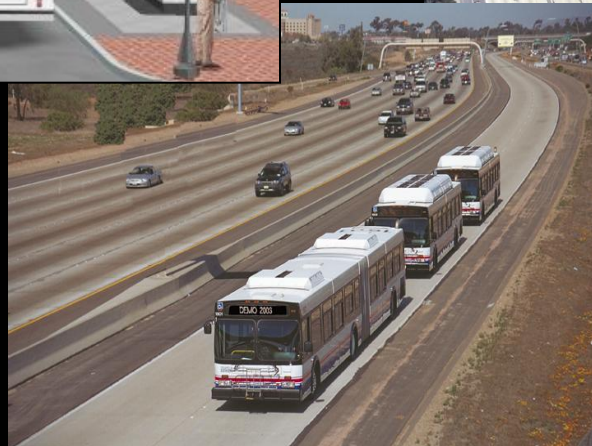


# ***Evolution of Bus Rapid Transit and the 2050 RTP Vision***



***San Diego Association of Governments***

# Transit Service Types

## Neighborhood Services

Community-based shuttles  
Lower speed, frequent stops



## Local Services

Serves local trips  
Lower speed, frequent stops



## Corridor Services

Serves medium distance trips  
Higher speed, less frequent stops



## Regional Services

Serves long-distanced trips  
Highest speed, limited stops



Different services serve different markets;  
all service types may operate in a given corridor.



# Range of Transit Options

## Pre-BRT

Rail



Local Bus

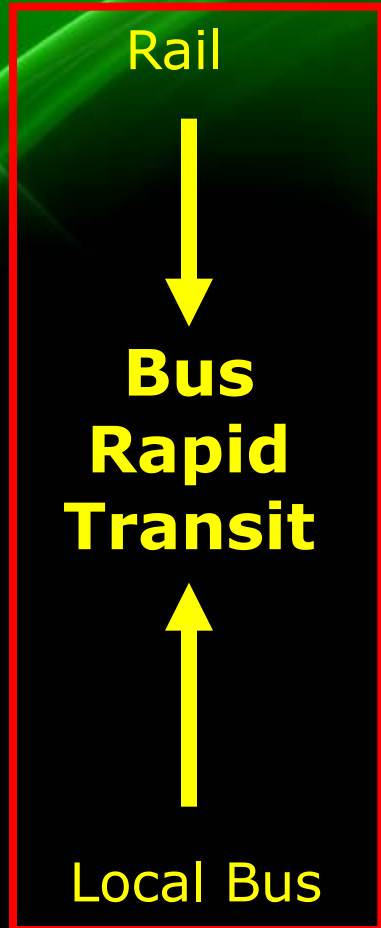


- **100% Exclusive ROW**
- **High capacity**
- **High reliability**
- **Moderate-high speed**
  
- **Longer implementation**
- **High capital costs**

- **Mixed-flow traffic**
- **Low capacity**
- **Medium-low reliability**
- **Low speed**
  
- **Short implementation**
- **Low capital costs**



# BRT as a New Transit Mode



- BRT can serve new markets
- BRT can range from “high end” to “low end” service depending on:
  - ☐ Priority treatments
  - ☐ Vehicle types
  - ☐ Station development
  - ☐ Customer amenities



**Many consider BRT a “third mode”**

# **BRT Notes**

- **No universal definition of BRT – each transit agency tailors “BRT” to their setting**
- **BRT development still in its infancy in U.S.; some advanced systems in other countries**
- **A lot of debate between LRT advocates vs. BRT advocates regarding which mode is better**
- **Misimpression that BRT is less expensive/ more cost effective than rail**



# **BRT Characteristics**

## ***Rights of Way***



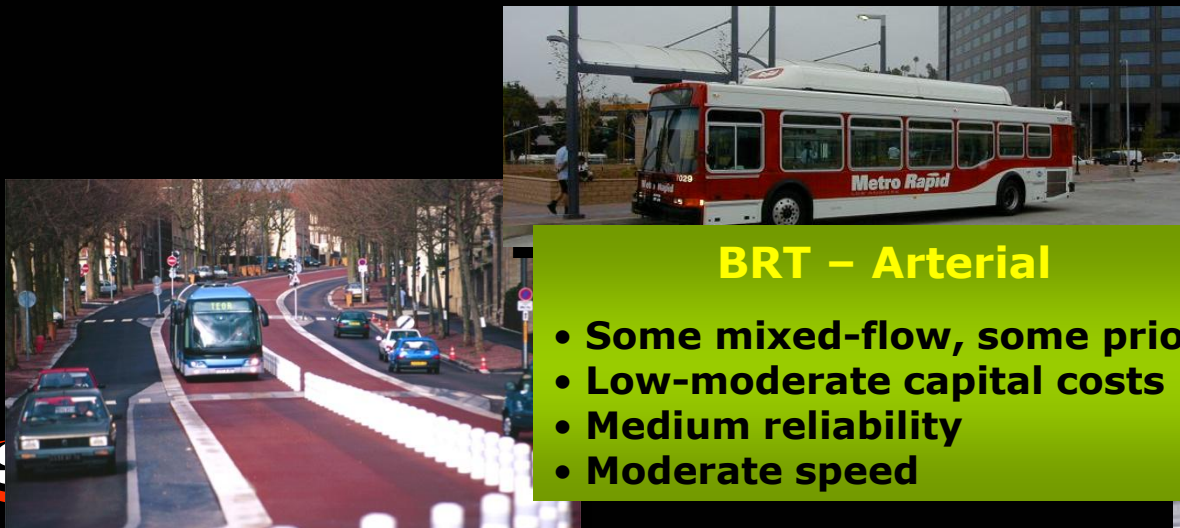
### **BRT – Guideway**

- 100% exclusive right-of-way
- Major capital investment
- High reliability
- Moderate-high speed



### **BRT – HOV/Managed Lanes**

- Shared HOV with carpools/FasTrak
- Major capital investment
- Medium-high reliability
- Moderate-high speed



### **BRT – Arterial**

- Some mixed-flow, some priority
- Low-moderate capital costs
- Medium reliability
- Moderate speed





# **BRT Characteristics**

## ***Vehicles – Is it Bus or Rail?!***





# **BRT Characteristics**

## ***Customer Experience***



**Rail-like vehicles have features that improve comfort, speed, and safety...**



**...along with station designs that create pleasant and attractive places.**

***Customers want vehicles and stations that are bright, spacious, comfortable, and make transit "fun" to ride.***



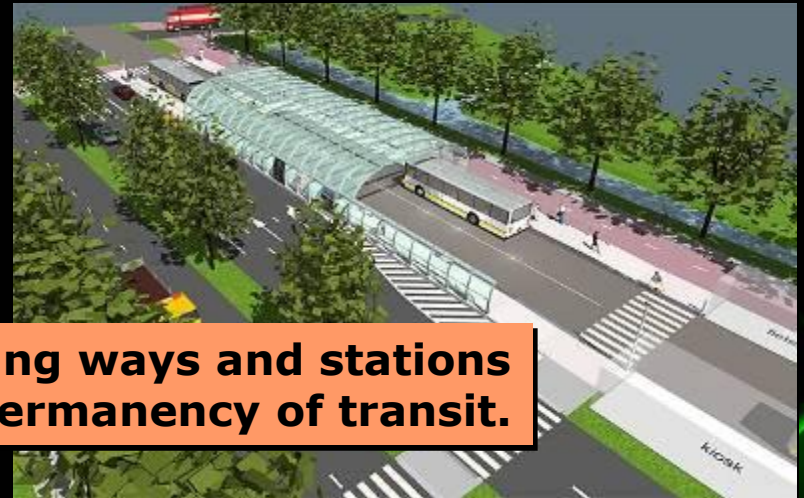
# **BRT Characteristics**

## ***Customer Experience***

**Special imaging or branding can be applied to all types of vehicles...**



**...as well as running ways and stations to establish the permanency of transit.**



***Distinctive design, color, and graphics provide a unique identity.***

# **BRT Characteristics**

## ***Customer Experience***

**BRT can also include multiple door, low floor vehicles for ease of boarding...**



**...“Smart Card” fare collection...**



**...and advanced technologies such as next-vehicle information.**

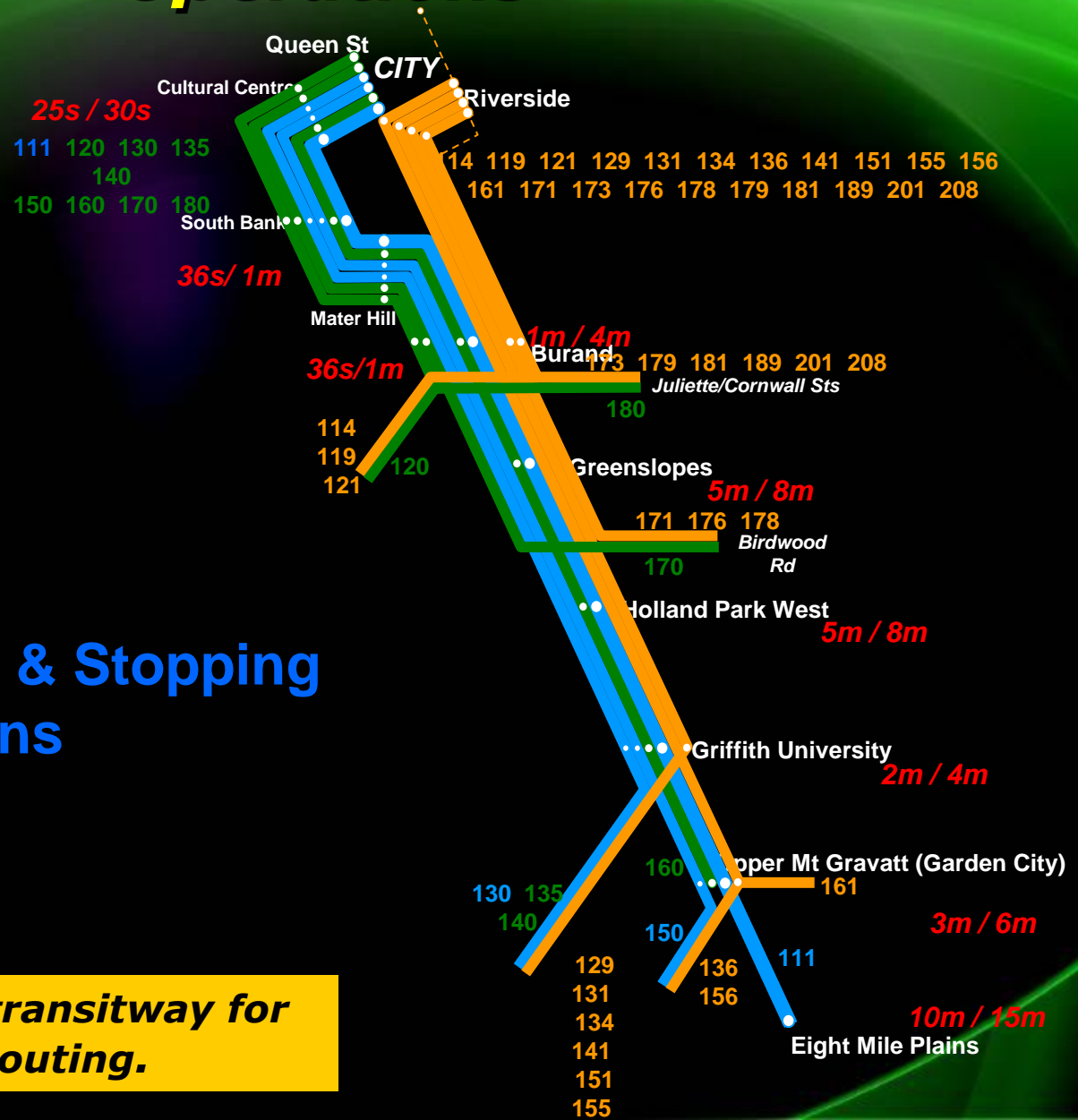
***Paying attention to the little details will attract new markets to transit.***



# BRT Characteristics

## Operations

### Brisbane Route & Stopping Patterns



**BRT routes can use transitway for all or part of routing.**

# **BRT Characteristics**

## ***Examples from Other Cities***



**Curitiba, Brazil**

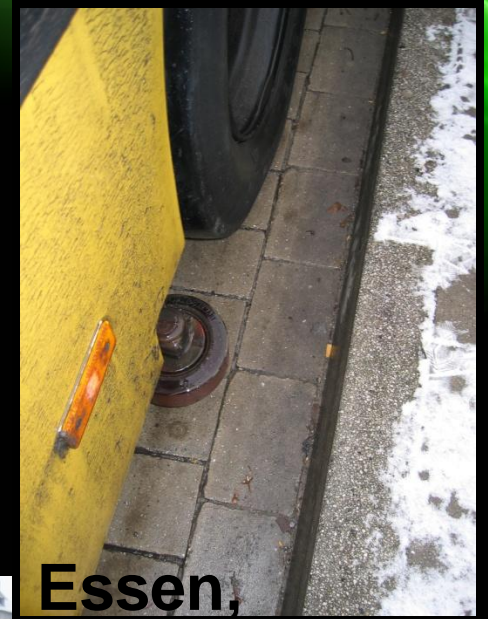
**Brisbane, Australia**





# BRT Characteristics

## *Examples from Other Cities*



Essen,  
Germany



Rouen,  
France



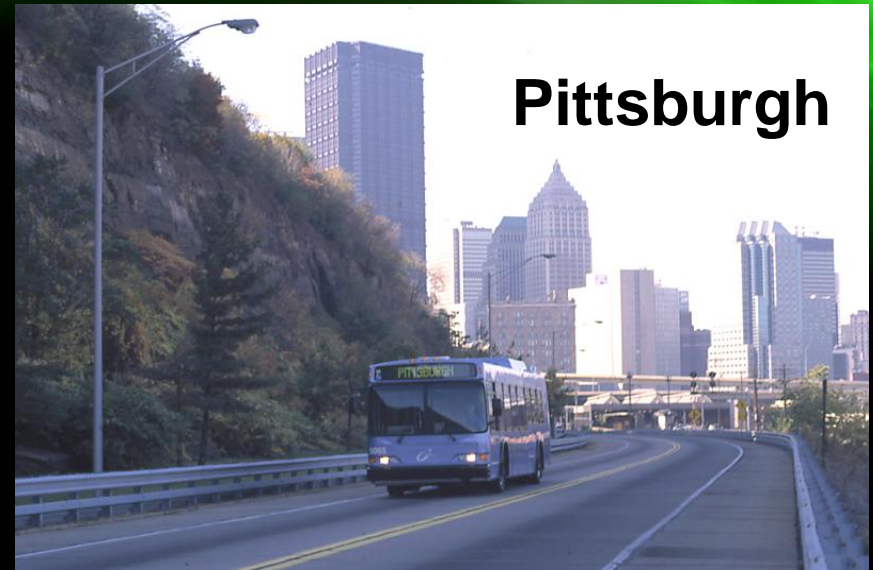


# **BRT Characteristics**

## ***Examples from Other Cities***



**Amsterdam**



**Pittsburgh**



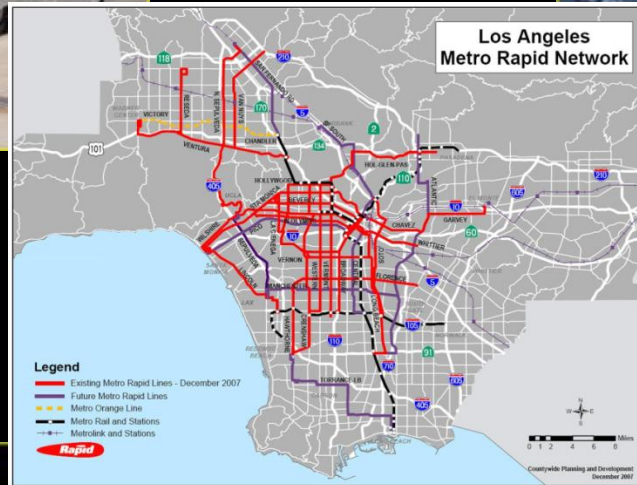
**Eugene, OR**





# BRT Characteristics

## *Examples from Other Cities*



Los Angeles – Metro Rapid



# BRT Characteristics

## *Examples from Other Cities*





# **BRT: San Diego Definitions**

- **BRT:**
  - ✓ Serves long distance tripmaking
  - ✓ Uses guideways/Managed Lanes to maintain high speeds/reliability
  - ✓ Serves corridors where rail not feasible
  - ✓ Has all-day, all-stop service plus peak commuter service
- **Rapid Bus:**
  - ✓ Serves medium distance tripmaking in key arterial corridors
  - ✓ Uses variety of priority measures and some dedicated lanes to improve speeds/reliability
  - ✓ 10 min all day frequencies

# ***I-15: BRT's starting point in San Diego***

- Mid-1990's – HOV lanes viewed as underutilized
- Value Pricing created to generate funding for transit by charging SOVs fee to use HOV lanes

**Provides travel choices**

**Transit, carpooling, FasTrak**



***FasTrak* revenue used to  
fund I-15 transit service**

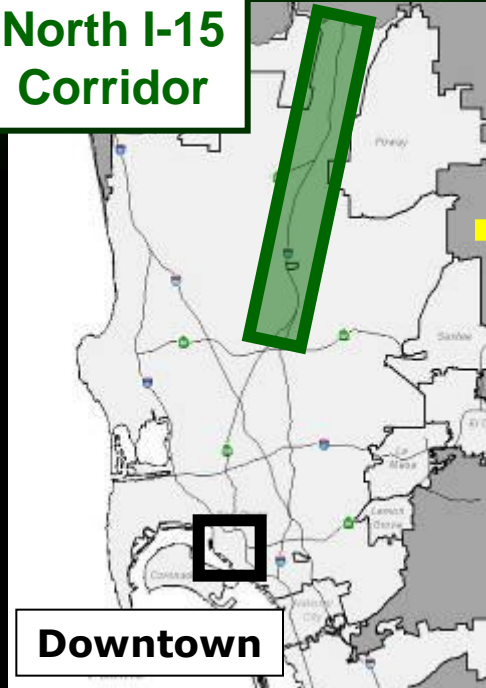
**Generated over \$7 million  
for transit in a decade**



# Bus Rapid Transit

## *Freeway Managed Lanes Facilities*

North I-15  
Corridor



Downtown

Mid-1990's



- 8-mile reversible HOV lane
- Commuter express service
- 80% choice ridership

Today



- 20-mile multi-modal Managed Lanes facility (transit, carpools, FasTrak)
- Direct access ramps to stations

# ***I-15 BRT Route and Station Plan***

- 35 mile long corridor
- Stations spaced 4-5 miles on average
- Service includes:
  - All-stop, all day trunk
  - Peak period limited stop commuter expresses
- All day service starts in 2013





# ***Direct Access Ramp and BRT Station***

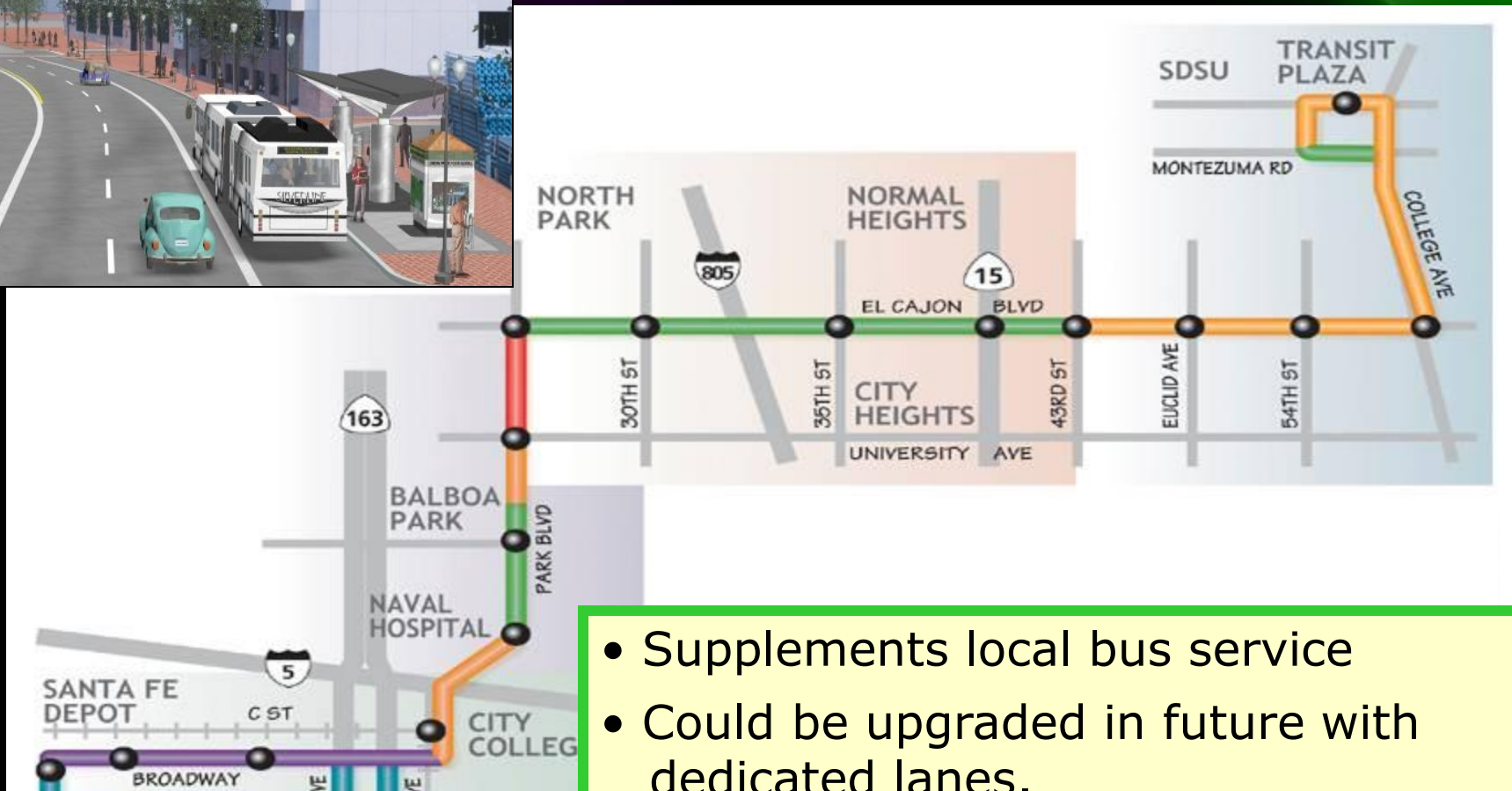


**Debate over off-line vs. in-line station design.**



# ***Rapid Bus***

## ***El Cajon Blvd Rapid***

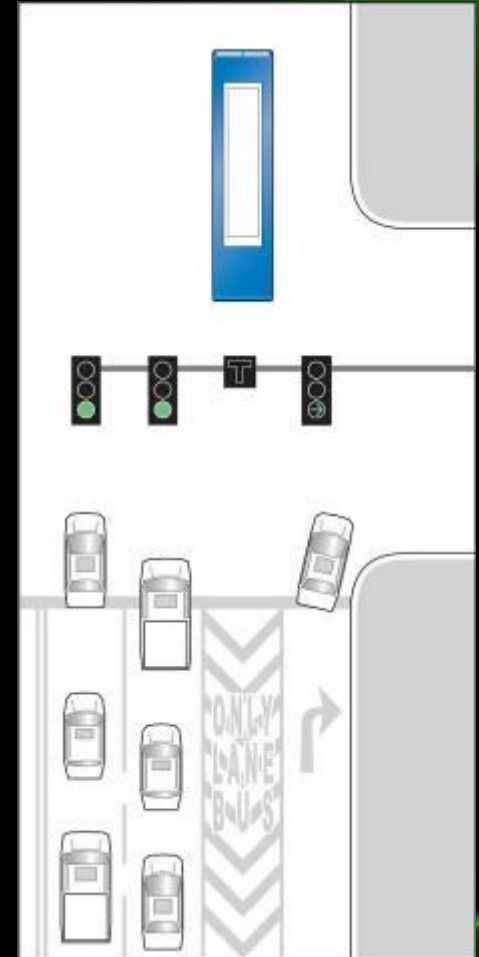
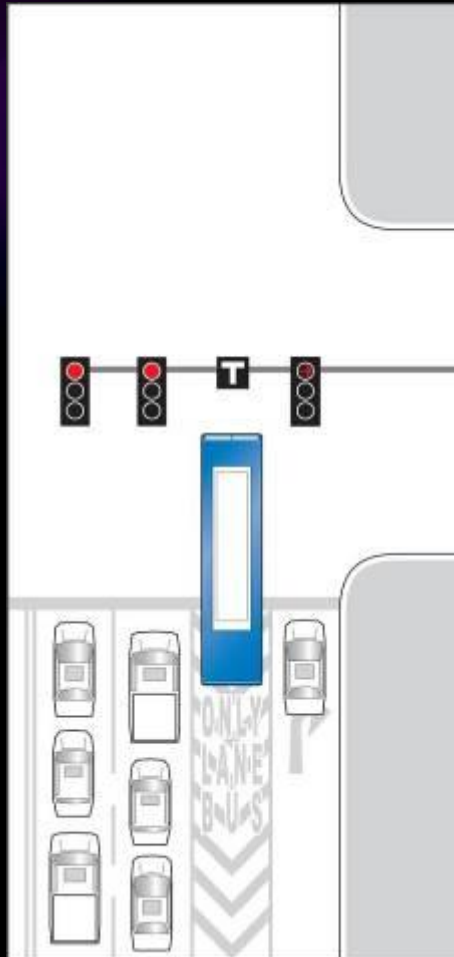


- Supplements local bus service
- Could be upgraded in future with dedicated lanes.
- Draft RTP has Rapid converted to LRT by 2050



# *Transit Priority Measures*

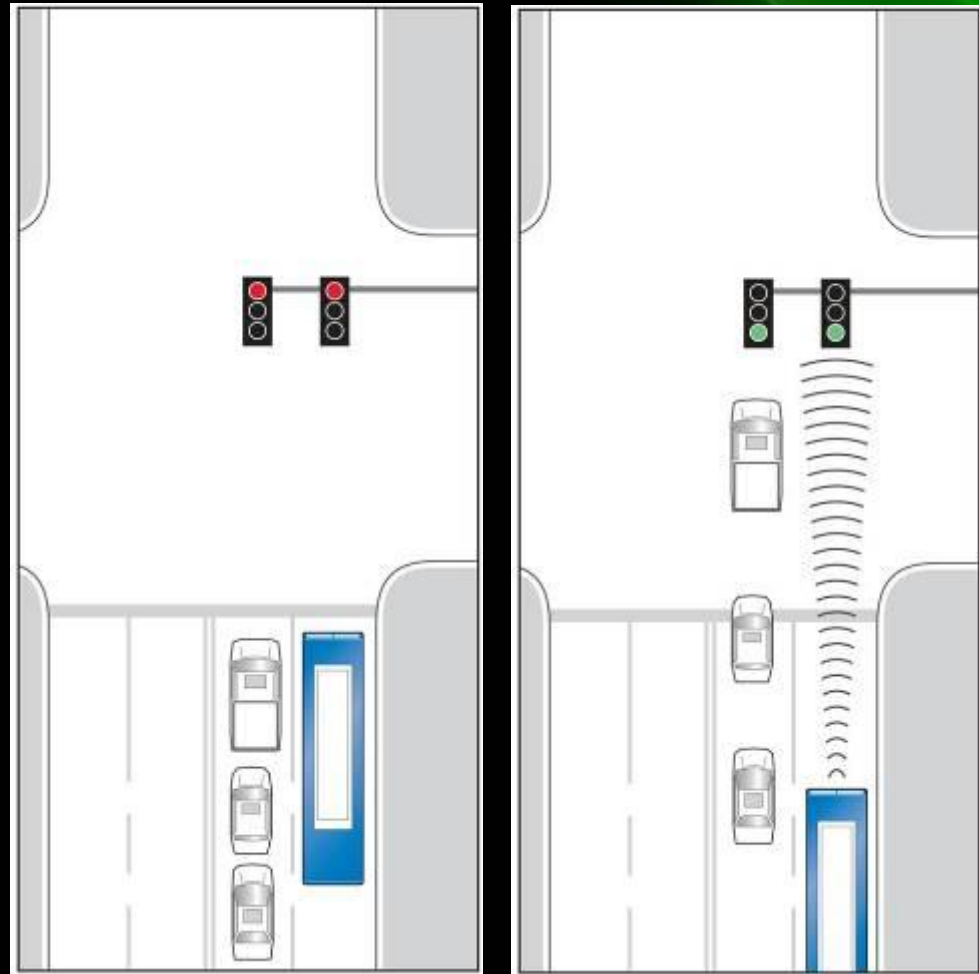
## *– Queue Jumpers*



# ***Transit Priority Measures***

## ***– Signal Priority***

- **If Bus is “Late” Request**
  - **Extend green light**
  - **“Shorten” red light**
- **Signal Systems Allow for Efficient Transit Priority without Significant Traffic Impacts**

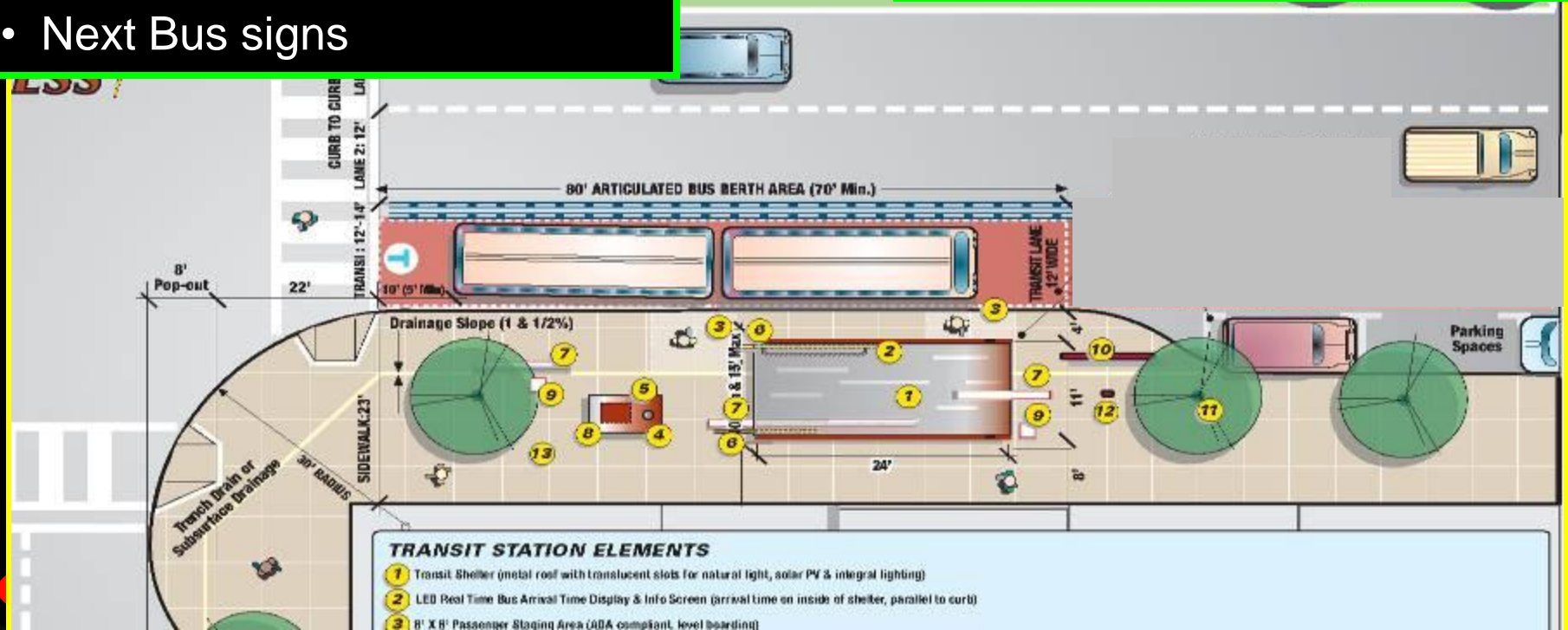




# Rapid Station Concept

## Elements:

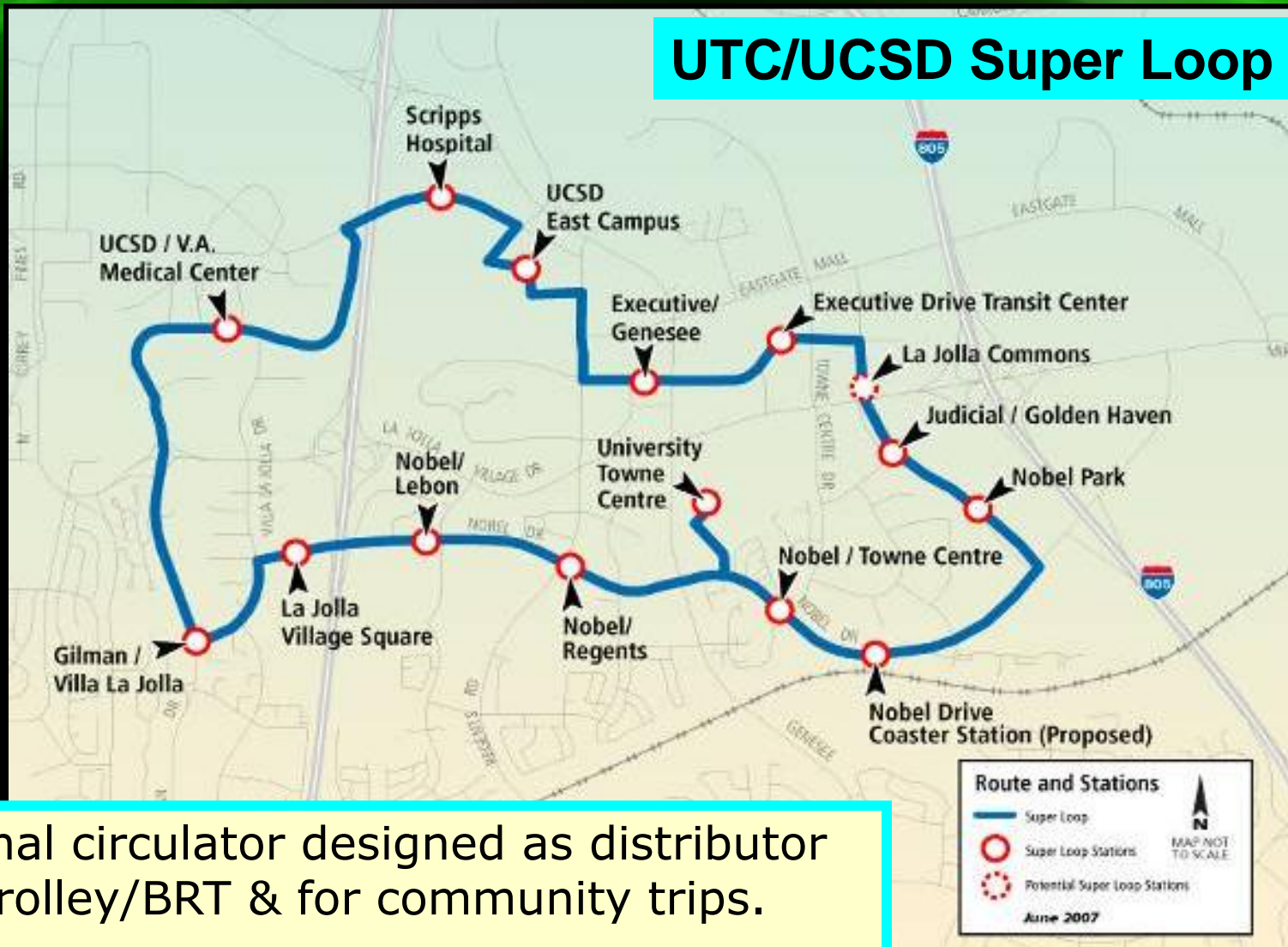
- Bulb-outs
- Shelter
- Level Boarding Platforms
- Improved Sidewalk Crossings
- Benches
- Next Bus signs



# Rapid Bus:

## Community Shuttle

### UTC/UCSD Super Loop

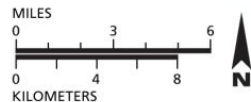


- Internal circulator designed as distributor for trolley/BRT & for community trips.
- Uses priority treatments & upgraded stops.



# Draft 2050 RTP Transit Plan

- High Speed Rail
- Commuter Rail
- Express LRT
- LRT
- Peak Period BRT
- BRT
- Streetcar/Shuttle
- Rapid Bus
- Local Bus



# BRT Timelines

- **BRT Lines**

- ✓ I-15 (Escondido-Downtown) – Early 2013
- ✓ I-15 (Escondido-UTC) – Early 2013
- ✓ I-805 (South Bay-Downtown) – 2014
- ✓ I-805 (South Bay-UTC) – 2020
- ✓ SR 52 (East County-UTC) – 2020

- **Rapid Bus**

- ✓ Super Loop – 2012
- ✓ Escondido (Downtown-North County Fair) – 2011
- ✓ Mid-City (El Cajon Blvd) – 2012
- ✓ Mid-City (University Ave) – 2020
- ✓ 14 additional lines between 2020 and 2035



